



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,792	07/24/2003	David R. Cheriton	CIS0192US	1225
33031 7590 11/23/2009 CAMPBELL STEPHENSON LLP 11401 CENTURY OAKS TERRACE BLDG. H, SUITE 250 AUSTIN, TX 78758			EXAMINER RUTKOWSKI, JEFFREY M	
			ART UNIT 2473	PAPER NUMBER
			MAIL DATE 11/23/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/626,792	Applicant(s) CHERITON, DAVID R.	
	Examiner JEFFREY M. RUTKOWSKI	Art Unit 2473	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 17-45, 47-59, 61-72, 74-81, 83, 85 and 87-92 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 17-45, 47-59, 61-72, 74-81, 83, 85 and 87-92 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 15-16, 46, 60, 73, 82, 84 and 86 have been cancelled.

Claims 81, 83-85 and 87-92 have been interpreted to invoke 112 sixth paragraph because the claims satisfy the 3-prong analysis for 112 sixth paragraph (see MPEP 2181).

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the current time interval field and the previous time interval field must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

1. Claims 2-3 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.
2. For **claims 2 and 11**, the DPM in **claim 1** already requires a plurality of fields in the form of a previous time interval and a current time interval field.
3. For **claim 3**, the feature of the DPM receiving a PSV is also recited in line 10 of **claim 1**.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 36-45, 47-54 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter because the claims are not tied to a particular apparatus.

Claims 68-72 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter because the claims are drawn to a computer program product, per se.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first and second paragraphs of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 2473

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 68-80** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The original specification does not adequately describe a computer-readable storage medium.

5. **Claims 81, 83-85 and 87-92** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not adequately describe the structure that is used to provide the means for indicating duplicate packets. According to the Specification, a PSV signal, not a structure, is used to indicate duplicate packets [0035 of the Pg Pub for the instant application].

6. **Claims 81, 83-85 and 87-92** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what is meant by a means for indicating duplicate packets.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2473

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. **Claims 1-5, 9-12, 14, 17, 23, 27-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Milliken (US Pg Pub 2003/0115485) in view of Isobe (US Pat 5,602,781) and Ito (US Pat 6,381,660).

10. For **claim 1**, Milliken discloses *a DPM (hash memory 320; see figure 3), a PSV generator (hash processor 310), wherein said DPM is coupled to said PSV generator (figure 3 shows the hash memory 320 is coupled to the hash processor 310), said PSV generator is configured to, responsive to receiving a packet, extract data from said packet, and calculate a PSV using said data from said packet (the hash processor 310 calculates a hash value from the payload field of a packet to determine duplicate packets; see paragraph 0046), and said DPM is configured to receive said PSV (the hash processor 310 stores the hash values in the hash memory 320; see paragraph 0050).*

11. Milliken discloses the *DPM (hash memory 320)* may have a variety of fields (see paragraphs 0053-0055). Milliken does not disclose the use of time interval fields. Ito discloses a FIFO buffer that *comprises a previous time interval field (previous system time) and a current*

Art Unit: 2473

time interval field (current system time; see col. 6 lines 4-8). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use current time interval and previous system time interval fields in Milliken's invention to generate clocking signals [**Ito, title**].

12. Milliken's *DPM* (hash memory **320**) has capacity issues (see paragraph 0052). Milliken does not disclose the use of a memory bank. Isobe discloses *a memory bank* (a memory bank is a group of memory cells; see col. 2 lines 7-15). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use Isobe's memory bank in Milliken's invention to realize a large memory capacity (Isobe, col. 2 lines 7-15).

13. The combination of Milliken and Isobe discloses *wherein said DPM bank is configured to store a plurality of DPMs by virtue of comprising a plurality of memory cells* (parallel DRAMs are used to store the hash values instead of a single hash memory **320**; see Isobe, col. 2 lines 7-15) *and said plurality of DPMs comprises said DPM* (according to the combination, the values of the hash memory **320** are included in the memory bank).

14. For **claims 2 and 11**, Milliken discloses *said DPM* (hash memory **320**) *comprises: a plurality of DPM fields* (hash memory **320** may have a variety of fields; see paragraphs 0053-0055).

15. For **claim 3**, Milliken discloses *said DPM* (hash memory **320**) *is configured to receive said PSV* (the hash processor **310** stores the hash values in the hash memory **320**; see paragraph 0050).

Art Unit: 2473

16. For **claims 4, 14 and 17**, Milliken discloses *wherein said DPM (hash memory 320) is implemented as a Bloom filter* (a bloom filter is used to store hash valued in the hash memory 320; see paragraph 0050).

17. For **claims 5 and 12**, Milliken discloses *wherein a one of said DPM fields corresponds to said PSV* (the actual hash values are stored in the hash memory 320; see paragraph 0050).

18. For **claims 9 and 29**, Milliken discloses *said PSV generator (hash processor 310) is configured to calculate said PSV using a cyclic redundancy check (CRC) calculation* (the hashing algorithms used by the hash processor 310 include CRC; see paragraph 0047) *and said data from said packet is path-independent* (the hashing is performed on the payload of the packet; see paragraph 0046. The payload of the packet does not define the path a packet will take.)

19. For **claim 10**, Milliken discloses *the data from said packet excludes header and trailer information* (the hashing is performed on the payload of the packet; see paragraph 0046).

20. For **claim 23**, Milliken discloses *a PSV generator (hash processor 310), wherein said DPM is coupled to said PSV generator* (figure 3 shows the hash memory 320 is coupled to the hash processor 310).

21. For **claim 27**, Milliken discloses *said PSV generator is configured to generate a PSV based on a packet received by said PSV generator* (the hash processor 310 calculates a hash value from the payload field of a packet to determine duplicate packets; see paragraph 0046), *and said DPM is configured to receive said PSV* (the hash processor 310 stores the hash values in the hash memory 320; see paragraph 0050).

Art Unit: 2473

22. For **claim 28**, Milliken discloses *said DPM is further configured to indicate that said PSV matches a PSV stored in said DPM* (the stored hash values are used to indicate duplicate received packets; see paragraph 0046).

23. For **claim 30**, Milliken discloses *a packet processing unit, said packet processing unit comprising said PSV generator* (the functions of the PSV generator are incorporated into the hash processor **310**; see paragraph 0046).

24. **Claims 6-8, 13, 24, 31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Milliken in view of Isobe and Ito as applied to **claims 3, 11, 30 respectively** above, and further in view of Khansari et al. (US 6,446,131), hereinafter referred to as Khansari.

25. For **claims 6 and 13**, the combination of Milliken, Isobe and Ito does not disclose each DPM field corresponds to a bit in the PSV. Khansari teaches *each of the DPM fields corresponds to a bit in the PSV* (see col. 7 lines 57-63). It would have been obvious to a person of ordinary skill in the art at the time of the invention to map each DPM field to a bit in the PSV in Milliken's invention to index the hash table (Khansari, col. 7 lines 50-51).

26. For **claim 7**, the combination of Milliken, Isobe and Ito does not disclose the use of compare functions. Khansari teaches *each of the DPM fields is configured to compare a value of a corresponding bit of the PSV with a value stored in each of the DPM fields to generate an output, and a value of each of the outputs indicates whether the value of the corresponding bit of the PSV matches the value stored in the each of the DPM fields* (see col. 7 lines 50-56; The index generated from the FCS is compared to the index in the table. The matching index then indicates if the packet was previously received.). It would have been obvious to a person of ordinary skill

Art Unit: 2473

in the art at the time of the invention to use compare functions in Milliken's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

27. For **claim 8**, the combination of Milliken, Ito and Isobe does not disclose DPM fields are addressed using the PSV. Khansari teaches *each of the DPM fields is configured to be addressed using the PSV, and a value stored in a one of the DPM fields corresponding to a value of the PSV indicates whether the packet is the duplicate packet* (see col. 7 lines 46-56). It would have been obvious to a person of ordinary skill in the art at the time of the invention address DPM fields using the PSV in Milliken's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

28. For **claim 24**, the combination of Milliken, Isobe and Ito does not disclose the use of DPM addressing and control units. Khansari teaches a DPM addressing unit coupled to said DPM (see col. 7 lines 50-56; The addressing unit provides the PSV to the table.) and a DPM control unit, coupled to control the DPM addressing unit and the DPM (see col. 7 lines 39-45; The control unit controls the duplicate packet detection/processing.). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use DPM addressing and control units in Milliken's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

29. For **claim 31**, the combination of Milliken, Ito and Itosbe does not disclose the use of a hit signal. Khansari further teaches the DPM bank comprises the DPM (see col. 7 lines 43-45), the DPM bank is configured to generate a hit signal (see col. 7 lines 46-50), and the DPM bank is coupled to receive the PSV from the PSV generator (see col. 7 lines 50-55) and to provide the hit signal to the packet processing unit (see col. 7 lines 33-43). It would have been obvious to a

Art Unit: 2473

person of ordinary skill in the art at the time of the invention to use hit signals in Milliken's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

30. **Claim 18** is rejected under 35 U.S.C. 103(a) as being unpatentable over Milliken in view of Isobe and Ito as applied to **claim 1** above, and further in view of Reiss (US 2004/0267945).

31. For **claim 18**, the combination of Milliken, Isobe and Ito does not disclose a plurality of DPMs. Reiss teaches a plurality of DPMs (see paragraph 115 lines 1-5). It is well known in the art that the received packet can be compared with a current map. Thus, it would have been obvious to one of ordinary skill in the art to use a current map. The motivation for doing so is to make the system more efficient by focusing on the current map.

32. **Claims 19-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Milliken in view of Isobe and Ito as applied to **claim 1** above, and further in view of Khansari and Reiss.

33. For **claim 19**, the combination of Milliken, Isobe and Ito does not disclose the use of DPM addressing and control units. Khansari teaches a DPM addressing unit coupled to said DPM (see col. 7 lines 50-56; The addressing unit provides the PSV to the table.) and a DPM control unit, coupled to control the DPM addressing unit and the DPM (see col. 7 lines 39-45; The control unit controls the duplicate packet detection/processing.). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use DPM addressing and control units in Milliken's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

34. The combination of Milliken, Ito, Isobe and Khansari does not disclose multiple DPMs and a selection unit. However, Reiss teaches multiple DPMs (see paragraph 115 lines 1-5) and a selection unit coupled to the DPMs (see paragraph 115 lines 1-5; The selection unit selects

Art Unit: 2473

between the multiple DPMs/tables.). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Milliken. The motivation for doing so is to increase the capacity to store previously received packets.

35. For **claim 20**, the combination of Milliken, Ito and Isobe does not disclose the use of a plurality of DPMs. Reiss teaches a plurality of DPMs (see paragraph 115 lines 1-5). It is well known in the art that the received packet can be compared with a current map. Thus, it would have been obvious to one of ordinary skill in the art to use a current map. The motivation for doing so is to make the system more efficient by focusing on the current map.

36. For **claim 21**, the combination of Milliken, Ito and Isobe does not disclose the use of a control unit. Khansari teaches the control unit providing the PSV to the DPM (see col. 7 lines 50-56). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use DPM addressing and control units in Milliken's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

37. The combination of Milliken, Ito, Isobe and Khansari does not disclose multiple DPMs. However, Reiss teaches providing the PSV to a selected one of the multiple DPMs (see paragraph 122 1-5) and a current and previous DPM (see paragraph 115 lines 1-7; There is a current DPM/table and the other tables are the previous tables.). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Milliken. The motivation for doing so is to increase the capacity to store previously received packets.

38. For **claim 22**, Milliken discloses clearing an inactive portion of the DPM (after a certain amount of time bit arrays are flushed; see paragraph 0052).

Art Unit: 2473

39. The combination of Milliken, Ito and Isobe does not disclose the use of multiple DPMs. However, Reiss teaches multiple DPMs (see 115 lines 1-7). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Milliken. The motivation for doing so is to increase the capacity to store previously received packets.

40. **Claims 25-26, 32-35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Milliken in view of Ito, Isobe and Khansari, as applied to **claim 24** above, and further in view of Reiss.

41. For **claim 25**, the combination of Milliken, Ito, Isobe and Khansari teaches and a DPM control unit, coupled to control the DPM addressing unit and the DPM (see Khansari, col. 7 lines 39-45; The control unit controls the duplicate packet detection/processing.)

42. The combination of Milliken, Ito, Isobe and Khansari does not disclose the use of multiple DPMs and a selection unit. However, Reiss teaches multiple DPMs (see paragraph 115 lines 1-5) and a selection unit coupled to the DPMs (see paragraph 115 lines 1-5; The selection unit selects between the multiple DPMs/tables.). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Milliken. The motivation for doing so is to increase the capacity to store previously received packets.

43. For **claim 26**, the combination of Milliken, Ito, Isobe and Khansari teaches the hit signal indicates that bit values of the PSV match bit values stored in corresponding locations in a DPM (see Khansari, col. 7 lines 46-51).

44. The combination of Milliken, Ito, Isobe and Khansari does not disclose the use of a selection unit and multiple DPMs. However, Reiss teaches multiple DPMs (see paragraph 115 lines 1-5) and a selection unit coupled to the DPMs (see paragraph 115 lines 1-5; The selection

Art Unit: 2473

unit selects between the multiple DPMs/tables.). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Milliken. The motivation for doing so is to increase the capacity to store previously received packets.

45. For **claim 32**, the combination of Milliken, Ito, Itosbe and Khansari teaches the hit signal indicates that a value of the PSV matches a value stored in a DPM (see Khansari, col. 7 lines 39-45).

46. The combination of Milliken, Ito, Itosbe and Khansari does not disclose the use of multiple DPMs. However, Reiss teaches a plurality of DPMs (see paragraph 115 lines 1-5). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Milliken. The motivation for doing so is to increase the capacity to store previously received packets.

47. For **claim 33**, the combination of Milliken, Ito, Itosbe and Khansari teaches the hit signal indicates that bit values of the PSV match bit values stored in corresponding locations in a DPM (see Khansari, col. 7 lines 39-45).

48. The combination of Milliken, Ito, Itosbe and Khansari does not disclose the use of multiple DPMs. However, Reiss teaches a plurality of DPMs (see paragraph 115 lines 1-5). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Khansari. The motivation for doing so is to increase the capacity to store previously received packets.

49. For **claim 34**, the combination of Milliken, Ito, Itosbe and Khansari discloses the packet processing unit is configured to process the packet using the hit signal (see Khansari, col. 7 lines 34-36).

50. For **claim 35**, the combination of Milliken, Ito, Itosbe and Khansari discloses the processing includes causing the packet processing unit to drop the packet based on the hit signal (see Khansari, col. 7 lines 34-36).

51. **Claims 36-37, 39, 47, 55-57, 61, 68-70, 74, 81, 87** are rejected under 35 U.S.C. 103(a) as being unpatentable over Milliken in view of Ito, Isobe and Reiss.

52. For **claims 36, 55, 68, 81**, Milliken discloses *generating a PSV, wherein said generating PSV comprises, responsive to receiving a packet, extract data from said packet, and calculating a PSV using said data from said packet* (the hash processor **310** calculates a hash value from the payload field of a packet to determine duplicate packets; see paragraph 0046). Milliken suggests *determining if a field of a DPM (hash memory **320**) indicates the packet is a duplicate packet* (the hash processor **310** stores the hash values in the hash memory **320**; see paragraph 0050. The stored hash values are used to detect the occurrence of a duplicate packet; see paragraph 0046. Figure 3 shows the hash processor **310** reads and writes to the hash memory **320**).

53. Milliken discloses the *DPM (hash memory **320**) may have a variety of fields* (see paragraphs 0053-0055). Milliken does not disclose the use of time interval fields. Ito discloses a FIFO buffer that *comprises a previous time interval field (previous system time) and a current time interval field (current system time; see col. 6 lines 4-8)*. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use current time interval and previous system time interval fields in Milliken's invention to generate clocking signals [**Ito, title**].

54. Milliken's *DPM (hash memory **320**) has capacity issues* (see paragraph 0052). Milliken does not disclose the use of a memory bank. Isobe discloses *a memory bank* (a memory bank is

Art Unit: 2473

a group of memory cells; see col. 2 lines 7-15). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use Isobe's memory bank in Milliken's invention to realize a large memory capacity (Isobe, col. 2 lines 7-15).

55. The combination of Milliken and Isobe discloses *wherein said DPM bank is configured to store a plurality of DPMs by virtue of comprising a plurality of memory cells* (parallel DRAMs are used to store the hash values instead of a single hash memory **320**; see Isobe, col. 2 lines 7-15) *and said plurality of DPMs comprises said DPM* (according to the combination, the values of the hash memory **320** are included in the memory bank).

56. Milliken does not disclose the use of a plurality of DPMs. However, Reiss teaches a plurality of DPMs (see paragraph 115 lines 1-5). Thus, it would have been obvious to one of ordinary skill in the art to use the system of Reiss in the system of Milliken. The motivation for doing so is to increase the capacity to store previously received packets.

57. For **claims 37, 56, and 69**, Milliken discloses *indicating the packet is the duplicate packet, if the determination determines the packet is the duplicate packet* (the hash values are used to determine duplicate packets; see paragraph 0046).

58. For **claims 39, 57, 70 and 83**, Milliken implies comparing the PSV to the DPM (the hash values are used to recognize duplicate packets and the hash processor **310** reads and writes from hash memory **320**; see figure 3 and paragraph 0046).

59. For **claims 47, 61, 74, and 87**, Milliken does not disclose a plurality of DPMs. Reiss teaches a plurality of DPMs (see paragraph 115 lines 1-5). It is well known in the art that the received packet can be compared with a current map. Thus, it would have been obvious to one

Art Unit: 2473

of ordinary skill in the art to use a current map. The motivation for doing so is to make the system more efficient by focusing on the current map.

60. **Claims 38, 40-45, 48-54, 58-59, 62-67, 71-72, 75-80, 85, 88-92** are rejected under 35 U.S.C. 103(a) as being unpatentable over Milliken in view of Ito, Isobe and Reiss as applied to **claims 37, 39, 56, 69 respectively** above, and further in view of Khansari.

61. For **claim 38**, Milliken discloses *dropping the packet, if the packet is a virus* (see paragraph 0060). Milliken also discloses a warning is raised if duplicate packets are detected (see paragraph 0046). The combination of Milliken, Ito, Isobe and Reiss does not disclose dropping duplicate packets. Khansari teaches dropping the packet, if the packet is the duplicate packet (see col. 7 lines 34-36). It would have been obvious to a person of ordinary skill in the art at the time of the invention to drop duplicate packets in Milliken's invention to prevent duplicate packets from entering the network (Khansari, col. 7 lines 34-36).

62. For **claim 40**, the combination of Milliken, Ito, Isobe and Reiss does not disclose the comparison of bit values. Khansari discloses the determination is made by comparing a bit of the PSV with a bit stored in the field of the DPM, and the indicating is performed if the bit of the PSV matches the bit stored in the field of the DPM (see col. 7 lines 50-56; The index generated from the FCS is compared to the index in the table. The matching index then indicates if the packet was previously received.). It would have been obvious to a person of ordinary skill in the art at the time of the invention to compare bit values in Milliken's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

63. For **claim 41**, the combination of Milliken, Ito, Isobe and Reiss does not disclose the setting of bit values. Khansari further teaches setting the bit stored in the field of the DPM to a

Art Unit: 2473

value of the bit of the PSV (see col. 7 lines 46-51). It would have been obvious to a person of ordinary skill in the art at the time of the invention to set bit values in Milliken's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

64. For **claims 42, 58, and 71**, the combination of Milliken, Ito, Isobe and Reiss does not disclose the selection of indexes. Khansari further teaches selecting the field of the DPM based on the PSV (see col. 7 lines 50-56; The index of the hash table is selected by matching the index generated from the FCS field.). It would have been obvious to a person of ordinary skill in the art at the time of the invention to select fields based on the PSV in Milliken's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

65. For **claim 43**, the combination of Milliken, Ito, Isobe and Reiss does not disclose the selection of fields based on PSV values. Khansari further teaches the determination is made by selecting the field of the DPM based on a value of the PSV (see col. 7 lines 50-56; The value of the PSV is the index.) and the indicating is performed if a value stored in the field of the DPM indicates that the packet is the duplicate packet (see col. 7 lines 46-50). It would have been obvious to a person of ordinary skill in the art at the time of the invention to select fields based on the PSV in Milliken's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

66. For **claim 44**, the combination of Milliken, Ito, Isobe and Reiss does not disclose the setting of values. Khansari further teaches setting the value stored in the field of the DPM, if the packet is not the duplicate packet (see col. 7 lines 50-56). It would have been obvious to a person of ordinary skill in the art at the time of the invention to set values in Milliken's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

67. For **claims 45, 59, 72 and 85**, Milliken discloses *said generating said PSV further comprises calculating a cyclic redundancy check (CRC) calculation* (the hashing algorithms used by the hash processor **310** include CRC; see paragraph 0047) *based on said data in said packet and said data from said packet excludes header and trailer information* (the hashing is performed on the payload of the packet; see paragraph 0046), *and said data packet is path-independent* (the hashing is performed on the payload of the packet; see paragraph 0046. The payload of the packet does not define the path a packet will take.)

68. For **claims 48, 62, 75, and 88**, the combination of Milliken, Ito, Isobe and Reiss discloses using multiple DPMs to determine if the packet is the duplicate packet (see Reiss, paragraph 115 lines 1-5).

69. The combination of Milliken, Ito, Isobe and Reiss does not disclose using a field of a DPM to indicate duplicate packets. Khansari teaches determining if a field of the DPM indicates the packet is the duplicate packet (see col. 7 lines 46-50, using the PSV (see col. 7 lines 50-56). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use DPM fields to indicate duplicates in Milliken's invention to be able to determine when duplicate packets have been received (Khansari, col. 7 lines 50-56).

70. For **claims 49, 63, 76 and 89**, the combination of Milliken, Ito, Isobe and Reiss discloses using multiple DPMs to determine if the packet is the duplicate packet (see Reiss, paragraph 115 lines 1-5).

71. The combination of Milliken, Ito, Isobe and Reiss does not disclose the use of DPM fields. Khansari teaches indicating the packet is not the duplicate packet, if the DPM indicates the packet is not the duplicate packet and indicating the packet is the duplicate packet, otherwise

Art Unit: 2473

(see col. 7 lines 46-50). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use DPM fields to indicate duplicates in Milliken's invention to be able to determine when duplicate packets have been received (Khansari, col. 7 lines 50-56).

72. For **claims 50, 64, 77 and 90**, the combination of Milliken, Ito, Itosbe and Reiss discloses using multiple DPMs and designating a current DPM as well as inactive and previous DPMs (see Reiss, paragraph 115 lines 1-7).

73. The combination of combination of Milliken, Ito, Itosbe and Reiss does not disclose how the DPM is portioned. Khansari teaches designating a portion of the table as inactive or previous and using a portion as the current DPM (see col. 8 lines 1-5). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use active and inactive fields in the DPM to indicate duplicates in Milliken's invention to be able to age the DPM table entries (Khansari, col. 7 lines 64-65).

74. For **claim 51**, the combination of Milliken, Ito, Isobe and Reiss discloses using multiple DPMs and designating a current DPM as well as inactive and previous DPMs (see Reiss, paragraph 115 lines 1-7) and clearing the inactive DPM.

75. The combination of Milliken, Ito, Isobe and Reiss does not disclose the use of DPM portions. Khansari teaches clearing the inactive portion of the DPM prior to using it as the current DPM (see col. 8 lines 1-5). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use active and inactive fields in the DPM to indicate duplicates in Milliken's invention to be able to age the DPM table entries (Khansari, col. 7 lines 64-65).

Art Unit: 2473

76. For **claims 52, 54, 65, 67, 78, 80, 91, and 92**, the combination of Milliken, Ito, Isobe and Reiss discloses Reiss teaches using multiple DPMs and designating a current DPM as well as inactive and previous DPMs (see Reiss, paragraph 115 lines 1-7) and clearing the inactive DPM.

77. The combination of Milliken, Ito, Isobe and Reiss does not disclose the use of active and inactive DPM portions. Khansari teaches the act of periodically reducing the DPM by selecting the inactive and active portions of the DPM (see col. 8 lines 1-5). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use active and inactive fields in the DPM in Milliken's invention to be able to age the DPM table entries (Khansari, col. 7 lines 64-65).

78. For **claims 53, 66 and 79**, the combination of Milliken, Ito, Isobe and Reiss does not disclose a period for periodically selecting DPM fields. Khansari further teaches a period of the performing periodically is such that the period is greater than an expected differential between duplicate packet arrivals and the period is less than a time between packet retransmissions (see col. 8 lines 6-14). It would have been obvious to a person of ordinary skill in the art at the time of the invention to periodically select DPM fields in Milliken's invention to be able to age the DPM table entries (Khansari, col. 7 lines 64-65).

Response to Arguments

The arguments with respect to the specification being enabled and definite for the means for indicating duplicate packets are not persuasive. A data structure (set of bits) is not a corresponding structure because the data structure is an abstraction. The CAFC has held that an abstraction cannot be used as a “means” in a means-plus-function limitation. *Blackboard Inc. v. Desire2Learn Inc.*, 91 USPQ2d 1481 (Fed. Cir. 2009)

The arguments filed on 07/16/2009 with respect to the obviousness rejections are moot due to a new grounds of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY M. RUTKOWSKI whose telephone number is (571)270-1215. The examiner can normally be reached on Monday - Friday 7:30-5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeffrey M Rutkowski/
Examiner, Art Unit 2473

/KWANG B. YAO/
Supervisory Patent Examiner, Art Unit 2473